



**MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH
RADIATION CONTROL PROGRAM**

REGULATORY GUIDE NO. 4.0

**Revision 0
March 1995**

**GUIDE FOR THE PREPARATION OF APPLICATIONS FOR
LICENSES FOR THE USE OF SEALED SOURCES IN
NON-PORTABLE GAUGING DEVICES**

**Massachusetts Department of Public Health
Radiation Control Program, 5th Floor
174 Portland Street
Boston, MA 02114**

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I. INTRODUCTION

A. Purpose of Instructions

This guidance document describes the type of information needed by the Agency to evaluate an application for a specific license for the possession and use of radioactive material contained in gas chromatographs or non-portable x-ray fluorescence analyzers or other non-portable device. This type of license is provided for under the Massachusetts Regulations for the Control of Radiation (105 CMR 120.000 et. seq.), hereafter called the Regulations.

This document is intended solely for guidance in the preparation of the license application and should not be considered a substitute for the applicant's careful safety evaluation of the proposed use of radioactive material. The applicant must ensure that the application correctly and adequately describes his/her radiation safety measures and procedures.

B. Applicable Regulations

The requirements for Specific Licenses are codified in the Regulations under the general heading of Specific Licenses (105 CMR 120.124 through 120.135). Other areas of the Regulations that are applicable to this type of license are:

- ! 105 CMR 120.001 - "General Provisions";
- ! 105 CMR 120.100 - "Licensing of Radioactive Material";
- ! 105 CMR 120.200 - "Standards for Protection Against Radiation";
- ! 105 CMR 120.750, "Notices, Instructions, and Reports to Workers: Inspections" describes training information;
- ! 105 CMR 120.770, "Packaging and Transportation of Radioactive Material"
- ! 105 CMR 120.890, "Low-level radioactive waste minimization regulations general provisions".

C. As Low as is Reasonably Achievable (ALARA)

Persons engaged in activities authorized by radioactive material licenses issued by the Agency should, in addition to complying with the requirements set forth in the regulations, make every reasonable effort to maintain radiation exposures as low as is reasonably achievable (ALARA). License applicants should give consideration to the ALARA philosophy in the development of plans for work with radioactive material.

II. FILING AN APPLICATION

An application for a specific license can be made by completing Agency form MRCP 120.100-4 (Attachment A) as follows:

1. Complete Items 1 through 4 and 13 on the form itself. For Items 5 through 12, submit the required information on supplementary pages.
2. Identify and key each separate sheet or document submitted with the application to the item's number of the application to which it refers.
3. All typed pages, sketches, and, if possible, drawings should be on 8-1/2 x 11 inch paper to facilitate handling and review. If larger drawings are necessary, fold them to 8-1/2 x 11 inches.
4. Complete all items in the application in sufficient detail so that the Agency can determine that your equipment, facilities, training and experience, and radiation safety program are adequate to protect health and minimize danger to life and property.
5. Please note that license applications are available for review by the public. Do not submit proprietary information unless necessary. If proprietary information is submitted without proper documentation that confidentiality must be maintained, there may be disclosure of the proprietary information to the public or time-consuming delays in processing your application.
6. Do not submit personal information about your individual employees unless it is pertinent to the application. Training and experience of individuals should be submitted to demonstrate their ability to manage radiation safety programs or to work safely with radioactive materials. A person specifically listed as an authorized user on an existing radioactive material license may submit a copy of that license (or reference an Agency Radioactive Material License Number) as evidence of training and experience. Submit home addresses and home telephone numbers only if they are part of an emergency response plan. Do not submit birthdates, Social Security numbers, and radiation dose information unless specifically requested by the Agency.
7. The application should be completed in triplicate. The original and one copy of the application, along with duplicate copies of supporting documents, should be sent to:

Massachusetts Department of Public Health
Radiation Control Program, 5th Floor
174 Portland Street
Boston, MA 02114

8. Retain one copy of the entire application for yourself. The license is issued based on the statements and representations in your application and any supplements to it, as well as the requirements in the regulations.

III. INFORMATION TO BE SUBMITTED

Since the space on the application form is not sufficient to contain all the required information, additional sheets should be appended.

Each separate sheet or document submitted with the application should be identified by a heading indicating the appropriate application item number and its purpose.

Item 1 - LICENSE INFORMATION

For a new license, check subitem A. For an amendment to an existing license, check subitem B. For a renewal of an existing license, check subitem C.

Item 2 - APPLICANT'S NAME AND MAILING ADDRESS

If you are filing as an individual, you should be designated as the applicant only if you are acting in a private capacity and the use of the radioactive material is not connected with your employment with a corporation or other legal entity. Otherwise, the applicant should be the corporation or other legal entity applying for the license.

The address specified here should be the applicant's mailing address for correspondence. This may or may not be the same as the address at which the material will be used as specified in Item 3.

Item 3 - LOCATIONS OF USE

Specify each location of use. List the street address, city, and state or other descriptive address (such as 5 miles from the intersection of Route 32 on Highway 10, Anytown, State) to allow us to locate your facilities. A post office box address is not acceptable.

If you plan to use radioactive material at more than one location, you must give the specific address of each location. You also must describe the intended use and the facilities and equipment at each location. Use Items 5 through 11 of the application to describe uses at multiple locations.

Item 4 - PERSON TO BE CONTACTED ABOUT APPLICATION

Provide the name and telephone number of the individual who is most familiar with your proposed radioactive materials program and can answer questions about the application. This individual, usually the RSO or a principal user of radioactive materials, will serve as the point of contact during the review of the application and during the period of the license. If this individual is not your full-time paid employee, specify your relationship with this individual. Notify the

Agency if the individual assigned to this function changes. Notification of a contact change is for information only and would not be considered an application for a license amendment.

Item 5 - RADIOACTIVE MATERIAL

Submit a detailed description of the radioactive material for which a license is desired. This description should provide information on:

The radionuclide(s) in the gauging device(s);

The physical form of any sources (i.e., foil source, plated source, or sealed source);

The manufacturer and model of the foil source, plated source, or sealed source that will be used in the device;

The amount of radioactive material that will be in each foil source, plated source, or sealed source; and

The maximum number of sources for which authorization is requested.

Item 6 - PURPOSE

The use to be made of the radioactive materials should be clearly described. Sufficient detail should be given to allow a determination of the potential for exposure to radiation and radioactive materials of both those working with the materials and the public.

The information specified in Items 5 and 6 is available from the manufacturer of the device.

Item 7 - INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAMS--THEIR TRAINING AND EXPERIENCE

- A. All licensees must have a radiation protection officer, designated by and responsible to management, for implementing the radiation safety program. State his/her name and title. Describe his/her experience in using radiation and radioactive materials, and his/her training in radiation protection. A statement describing his/her responsibilities and authority for carrying out the radiation safety program should be provided.
- B. Specify the names of the person(s) who will directly supervise the use of radioactive material or who will use radioactive material without supervision.

Item 8 - Radiological Qualifications and Training

A resume of the training and experience of each person who will directly supervise the use of material, who will use material without supervision or who will have responsibilities for radiological safety should be submitted. The resume should include the type (on-the-job or formal course work), location, and duration of the training. Training should cover standard principles and practices of radiation safety as well as the manufacturer's operating, maintenance and emergency procedures.

If any individual was previously approved to use gas chromatographs or non-portable x-ray fluorescence analyzers or other non-portable device containing a sealed source on another specific license, then simply submit a copy of that license (or reference a Massachusetts Radioactive Material License Number). License renewals that do not request the addition of new users may simply reference the current license for evidence of user training and experience without submitting additional training documentation.

Item 9 - Facilities and Equipment

Devices containing licensed material and detector cells not contained in a device must be stored in such a manner as to prevent unauthorized removal or unauthorized use as required by 105 CMR 120.131. Submit an annotated sketch or sketches of all use and/or storage area(s), closet(s), etc., showing the relationship of the use and/or storage area to other adjoining areas and the direction of north. Also provide a description of the security measures taken to limit access to the use and/or storage areas to authorized personnel only (e.g., areas locked when not in use by authorized users and keys possessed by authorized users only).

Provisions for venting the detector exhaust ports should also be provided due to the possibility of work area contamination from radioactive vapor emissions.

Storage areas for material such as spare detector cells must also be specified. Those areas must be secured in such a manner as to ensure against unauthorized removal or use of radioactive material as required by 105 CMR 120.131. The room, laboratory, or area in which the radioactive material is located should be:

- A. Accessible only to persons authorized to use the radioactive material; and
- B. Locked when an authorized user is not physically present.

For each separate facility, submit a letter from the owner of that property which verifies that the owner understands that radioactive material will be stored and/or used on that property.

Item 10 - RADIATION SAFETY PROGRAM

Submit a copy of the applicant's written radiation safety procedures. The procedures should be in the form of written instructions to users and should cover the following items:

- A. Assurance that users will follow the written procedures provided by the device manufacturer (for operation, maintenance and repair). If the applicant will follow a procedure other than the one provided by the device manufacturer, submit equivalent safety procedures for Agency review.
- B. Procedures or methods for preventing unauthorized access, use or removal of the device at permanent facilities. Instructions should state that individual users are never to leave a device unattended unless the device is secured from unauthorized access (e.g., room locked when authorized users not physically present).
- C. Emergency procedures to be followed in case of accidents involving damage or loss of radioactive material (see Item 10.2 of these instructions).
- D. Specific instructions to users informing them that any maintenance on the devices involving dismantling, removal of sources from their respective source holder(s), repair, etc., must be performed only by the manufacturer or other persons specifically authorized to perform such operations by the Department, another Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission.
- E. Procedures specifying the maximum temperature at which detector cells will be operated and prohibiting users from operating gas chromatographs at temperatures greater than the maximum operating temperature for the radioactive detector cells.
- F. Procedures or methods for preventing unauthorized access to detector cells removed from devices and kept in storage in other facility locations (e.g., detector cells properly secured against unauthorized access and labeled as in storage).

10.1 Leak Testing of Sealed Sources

Leak testing of sealed sources may be performed only by an organization or individual specifically licensed by the Agency, an Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission to perform such services. In establishing a program for leak testing, three alternatives are available from which to choose:

1. The services of a licensed consultant or commercial organization may be used to obtain leak test samples, evaluate the samples, and report the results back to the applicant. If the firm is specifically licensed by this Agency, please indicate its Massachusetts Radioactive Material License Number. If the firm is specifically licensed by an Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission, then submit a copy of the license authorizing the firm to provide such leak test services.
2. A commercially available leak test kit may be used to obtain leak test samples for subsequent analysis by a licensed service company. If this option is chosen, then submit the following information:
 - A. Leak test kit manufacturer and kit model;
 - B. Indication that the kit will be used in accordance with the instructions provided;
 - C. Identification of the source or device to be tested with the kit; and
 - D. Identification of the firm performing the analysis of the leak test samples. If the firm is specifically licensed by this Agency, include its Massachusetts Radioactive Material License Number. If the firm is specifically licensed by an Agreement State, a Licensing State or the U.S. Nuclear Regulatory Commission, then submit a copy of the license authorizing the firm to provide such leak test services.
3. The applicant may request authorization to perform leak tests, including sampling and analysis. If this option is chosen, then submit the information outlined in Appendix B for Agency evaluation.

Regardless of which option is chosen, specify the frequency at which leak tests will be performed for sealed sources used in gas chromatographs, x-ray fluorescence analyzers or other non-portable device. Most sources used in these types of devices are evaluated and approved for a six month leak test frequency. Note that detector cells containing tritium (H-3) are not required to be leak tested.

10.2 Emergency Procedures

Submit a copy of the written emergency procedures to be followed in the event of loss or theft, or in case of an accident involving damage to the device(s) containing radioactive material. The instructions should:

1. Describe the immediate action to be taken in order to prevent possible contamination/radiation exposure to personnel.
2. Include the names and telephone numbers of the responsible individuals within the applicant's organization to be notified and who will, in turn, notify local police and the Radiation Control Program (617/727-6214).

In addition, indicate where copies of these procedures will be maintained. There should be a copy posted near each device use or storage location.

Item 11 - WASTE MANAGEMENT

11.1 Waste Disposal

Submit your procedures for waste disposal. Provide a complete description of specific methods used for waste disposal of radioactive material. A licensee may dispose of waste by:

1. Transfer to persons properly licensed to receive such waste; i.e., commercial radioactive waste disposal firms.
2. Release into air in conformance with 105 CMR 120.222 the Regulations.
3. Incineration only if specifically authorized by the Agency in accordance with 105 CMR 120.254 of the Regulations.
4. Release into a sanitary sewer in conformance with 105 CMR 120.253 of the Regulations. (Describe your methods for controlling the sewage disposal of radioactive wastes in order to ensure that disposals do not exceed the limits specified in 105 CMR 120.222).
5. The disposal of radioactive material by storage means that the material is allowed to decay to concentrations which do not exceed those specified in 105 CMR 120.195: Appendix A, (Exempt Concentrations), before discarding the material.

All solid wastes potentially contaminated with radioactive material should be monitored with a suitable instrument to ensure that no detectable radioactivity remains

before disposal by normal methods. Any shielding materials should be removed before monitoring.

Massachusetts Law prohibits the disposal of radioactive material by burial within the Commonwealth of Massachusetts.

11.2 Waste Minimization

105 CMR 120.890 requires that all radioactive material users, as well as all generators of radioactive waste, prepare statements indicating the measures they have taken to minimize any waste that may result from their operations. Those applicants whose operation result in 100 cubic feet or more of waste per annum, and such waste requires disposal, must develop and institute waste minimization programs predicated on detailed plans. Provide an appropriate document that applies to your operation.

Item 12 - ORGANIZATIONAL STRUCTURE

Provide an organizational chart both for the institution, showing Administration, Radiation Safety Committee and Radiation Safety Officer, and for the corporate structure and ownership. Identify the state of incorporation, and provide the names of principal stockholders, if applicable. List parent companies, names, addresses, and titles of principals. List percentages of partners, shares, state of incorporation, and other organizational details that may be important during financial or legal circumstances.

Item 13 - CERTIFICATION

Identify the title of the office held by the individual who signed the application.

BEFORE SUBMITTING IT, REVIEW YOUR APPLICATION TO BE SURE YOU HAVE RESPONDED TO EACH ITEM AND TO BE SURE THAT EACH PAGE THAT YOU HAVE ATTACHED HAS AN ATTACHMENT NUMBER AND IS DATED.

IV. AMENDMENTS TO LICENSES

Licensees are required to conduct their programs in accordance with statements, representations and procedures contained in the license application and supportive documents. The license **MUST BE AMENDED** if the licensee plans to make any changes in facilities, equipment (including monitoring and measuring instruments), procedures, personnel or radioactive material used.

Applications for license amendments may be filed either on the application form or in letter form. The application should identify the license by number and should clearly describe the exact nature of the changes, additions and/or deletions. References to previously submitted information and documents

should be clear and specific and should identify the pertinent information by date, page and paragraph.

V. RENEWAL OF A LICENSE

A radioactive materials license expires five (5) years from the last day of the month in which it was issued. An application for renewal of a license should be filed at least thirty (30) days PRIOR TO the expiration date. This will ensure that the license does not expire until final action on the application has been taken by the Agency as provided for in 105 CMR 120.133.

Renewal applications should be filed on the forms provided by the Agency for this purpose. The application should contain complete and up-to-date information about the applicant's current program. In order to facilitate the review process, the application for renewal should be submitted without reference to previously submitted documents and information. If such references cannot be avoided, they should be clear and specific and should identify the pertinent information by date, page and paragraph.

VI. LICENSE TERMINATIONS

A licensee may request termination of a radioactive material license at any time. To terminate a license, the licensee must meet the requirements of 105 CMR 120.132 which include:

1. Transfer or disposal of all licensed radioactive material in the licensee's possession in accordance with 105 CMR 120.256;
2. Notification of Agency of termination of licensed activity;
3. Performance of radiation surveys or the equivalent in accordance with 105 CMR 120.132(D)(1)(e); and
4. Submission of the completed Termination Form MRCP 120.100-3 and a copy of any applicable radiation surveys to the Agency at least 30 days before the expiration date of the license or upon termination of all licensed activities. The Agency reserves the right to perform confirmatory surveys of licensed facilities prior to termination.

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APPENDIX A

RADIATION SAFETY OFFICER

Among the specific duties and responsibilities of the radiation safety officer are the following:

- A. Assure that radioactive material possessed under the license conforms to the material authorized by the license.
- B. Assure that only individuals authorized by the license use the radioactive material.
- C. Assure that radioactive material is properly secured against unauthorized removal at all times when not in use.
- D. Serve as a point of contact with the Agency and give assistance in case of emergency (e.g., damage, fire, theft, etc.).
- E. Assure that the proper authorities (i.e., Massachusetts Radiation Control Program, local police, U.S. Department of Transportation, etc.) are notified promptly in case of accident, damage, theft or loss.
- F. Assure that the terms and conditions of the license (such as periodic leak tests) are met and that the required records (such as leak test, accountability, etc.) are maintained and periodically reviewed for compliance with Agency regulations and license conditions.

APPENDIX B

LEAK TESTING OF SEALED SOURCES

Distributors of sealed sources usually supply a certificate with each source giving the results and the date of the last leak test performed on such sources. If such a certificate is not received with a source, the source is not to be used until a leak test is performed and the results of the test are received showing that the source is not leaking or contaminated. Thereafter, the source must be tested for leakage and contamination at intervals not to exceed six months, unless otherwise authorized. Records of the testing of each source must be maintained for Agency inspection.

Applicants who wish to perform their own leak tests, including the taking and the analysis of the test samples, must submit the following descriptive information in support of the application:

- A. Describe all instrumentation which will be used for the analysis of the test samples. The descriptive information should include:
 - 1. The manufacturer and model of each instrument;
 - 2. The types and energies of detectable radiation, as it pertains to each instrument;
 - 3. The efficiency of each instrument, for each type of radioactive material to be tested, including the supportive calculations documenting such efficiency; and
 - 4. The minimum sensitivity of each instrument, for each type of radioactive material to be tested, including the supportive calculations documenting such minimum sensitivity. At a minimum, the instrument must be capable of detecting 0.005 microcuries (185 Bq) of the radioactive material being tested.
- B. Identify the calibration standards to be used in the analysis of each radioactive material to be tested. The identification should include the manufacturer, model, radionuclide and activity of each standard. Such standards should be traceable to a national standard.
- C. Describe the calibration procedures and the frequency of calibration for each instrument.
- D. Describe the material to be used in collecting the leak test samples.
- E. Describe the radiation safety procedures to be followed during the leak test sample collection process.
- F. Describe in detail the procedure for performing the analysis of the leak test samples.

- G. Submit sample calculations showing the conversion of the raw counting data to units of microcuries.
- H. Describe the method for handling and disposing of contaminated leak test samples.
- I. Describe the training and experience of each person who will take or evaluate the leak test samples which qualifies the person for each task.
- J. Include copies or facsimiles of leak test certificates that identify:
1. The name and address of the individual or firm that possesses the source which was leak tested;
 2. The date the sample was collected;
 3. The individual collecting the sample;
 4. The person performing the analysis;
 5. The date the analysis was performed;
 6. The unique identification of the source tested (e.g., manufacturer, model, serial number, etc.);
 7. The radionuclide and the activity of radioactive material contained in the source; and
 8. The result of the test expressed in units of microcuries or becquerels. Actual test results shall be reported unless such results are less than 0.005 microcuries (185 Bq).

LIST OF EXHIBITS

<u>Exhibit</u>	<u>Title</u>	<u>Page</u>
A	- Application Form (MRCP 120.100-4)	17
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EXHIBIT A

APPLICATION FORM FOR RADIOACTIVE MATERIAL LICENSE
FOR THE USE OF SEALED SOURCES IN
NON-PORTABLE GAUGING DEVICES

(FORM MRCP 120.100-4)

RADIOACTIVE MATERIALS LICENSE APPLICATION
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH, RADIATION CONTROL PROGRAM

INSTRUCTIONS - Complete all items in this application for a new license or the renewal of an existing license. Use supplemental sheets where necessary. Item 13 must be completed on all applications. Mail the completed application to: The Radiation Control Program, 174 Portland Street, 5th Fl. Boston, MA 02114. Upon approval of this application, the applicant will receive a State of Massachusetts Radioactive Material License.

1. THIS IS AN APPLICATION FOR <input type="checkbox"/> A. NEW LICENSE <input type="checkbox"/> B. AMENDMENT TO LIC.NO. _____ <input type="checkbox"/> C. RENEWAL OF LICENSE NO. _____	2. NAME AND MAILING ADDRESS OF APPLICANT (Include zip code)									
3. ADDRESSES WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.										
4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION.	TELEPHONE NUMBER									
SUBMIT ITEMS 5 THROUGH 12 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.										
5. RADIOACTIVE MATERIAL a. Element & mass number; b. Chemical and/or physical form; c. Maximum amount that will be possessed at any one time.	6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.									
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.	8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.									
9. FACILITIES AND EQUIPMENT.	10. RADIATION SAFETY PROGRAM									
11. WASTE MANAGEMENT (INCLUDE MINIMIZATION STATEMENT/PLAN).	12. CORPORATE STRUCTURE									
<p style="text-align: center;">ITEM 13 - CERTIFICATE (This item must be completed)</p> <p>THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH APPLICABLE STATE REGULATIONS AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.</p> <table style="width: 100%;"><tr><td style="width: 45%;"><div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div><div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div></td><td style="width: 10%; text-align: center; vertical-align: middle;">By:</td><td style="width: 45%;"><div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div><div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div></td></tr><tr><td style="text-align: right;">TYPE OR PRINT NAME OF CERTIFYING OFFICIAL</td><td></td><td style="text-align: left;">SIGNATURE</td></tr><tr><td style="text-align: right;">TITLE OF CERTIFYING INDIVIDUAL</td><td style="text-align: center; vertical-align: middle;">Date:</td><td style="border-bottom: 1px solid black;"></td></tr></table>		<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div>	By:	<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div>	TYPE OR PRINT NAME OF CERTIFYING OFFICIAL		SIGNATURE	TITLE OF CERTIFYING INDIVIDUAL	Date:	
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TYPE OR PRINT NAME OF CERTIFYING OFFICIAL		SIGNATURE								
TITLE OF CERTIFYING INDIVIDUAL	Date:									

EXHIBIT B

CERTIFICATE - TERMINATION AND
DISPOSITION OF RADIOACTIVE MATERIAL
FORM MRCP 120.100-3)

CERTIFICATE - TERMINATION
DISPOSITION OF RADIOACTIVE MATERIAL

LICENSEE NAME: _____ LICENSE NUMBER: _____

ADDRESS: _____

The following information is provided in accordance with 105 CMR 120.132, "Expiration and Termination of Licenses." This regulation is attached to this form. Complete the items below which are applicable to your licensed activity:

- ___ 1. All use of radioactive materials authorized under the above referenced license has been terminated.
- ___ 2. Radioactive contamination has been removed to the level outlined in 105 CMR 120. 291 to the extent practicable.
- ___ 3. All radioactive material previously procured and/or possessed under the authorization granted by the above referenced license has been disposed of as follows:

___ Transferred to (Name and Address): _____

which is authorized to possess such material under License Number _____

issued by (Licensing Agency): _____

___ Decayed, surveyed and disposed of as non-radioactive trash.

___ Licensed under License Number: _____

issued by (Licensing Agency): _____

___ No radioactive material has ever been procured and/or possessed by the licensee under the authorization granted by the above referenced license.

___ Other (Attach additional pages).

___ 4. Attached are radiation surveys or the equivalent as specified in 105 CMR 120.132(I)(2).

___ 5. Additional remarks. (Attach additional pages).

THE UNDERSIGNED, ON BEHALF OF THE LICENSEE, HEREBY CERTIFIES THAT LICENSABLE QUANTITIES OF RADIOACTIVE MATERIAL UNDER THE JURISDICTION OF MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH RADIATION CONTROL PROGRAM ARE NOT POSSESSED BY THE LICENSEE. IT IS THEREFORE REQUESTED THAT THE ABOVE REFERENCED LICENSE BE TERMINATED.

DATE: _____ SIGNATURE: _____

TITLE: _____

120.132: Expiration and Termination of Licenses

(A) Each specific license expires at the end of the day on the expiration date stated in the license unless the licensee has filed an application for renewal under 105 CMR 120.133 not less than 30 days before the expiration date stated in the existing license. If an application for renewal has been filed at least 30 days prior to the expiration date stated in the existing license, the existing license expires at the end of the day on which the Agency makes a final determination to deny the renewal application or, if the determination states an expiration date, the expiration date stated in the determination.

(B) Each specific license revoked by the Agency expires at the end of the day on the date of the Agency's final determination to revoke the license, or on the expiration date stated in the determination, or as otherwise provided by Agency Order.

(C) Each specific license continues in effect, beyond the expiration date if necessary, with respect to possession of radioactive material until the Agency notifies the licensee in writing that the license is terminated. During this time, the licensee shall:

- (1) Limit actions involving radioactive material to those related to decommissioning; and,
- (2) Continue to control entry to restricted areas until they are suitable for release in accordance with Agency requirements.

(D) Within 60 days of the occurrence of any of the following, consistent with the administrative directions in 105 CMR 120.013, each licensee shall provide notification to the Agency in writing of such occurrence, and either begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity so that the building or outdoor area is suitable for release in accordance with Agency requirements, or submit within 12 months of notification a decommissioning plan, if required by 105 CMR 120.132(F)(1) and begin decommissioning upon approval of that plan if-

- (1) The license has expired pursuant to 105 CMR 120.132(A) or (B); or,
- (2) The licensee has decided to permanently cease principal activities, as defined in 105 CMR 120.132, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with Agency requirements; or,
- (3) No principal activities under the license have been conducted for a period of 24 months; or,
- (4) No principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with Agency requirements.

(E) The Agency may grant a request to extend the time periods established in 105 CMR 120.132(D) if the Agency determines that this relief is not detrimental to the public health and safety and is otherwise in the public interest. The request must be submitted no later than 30 days before notification pursuant to 105 CMR 120.132(D). The schedule for decommissioning set forth in 105 CMR 120.132(D) may not commence until the Agency has made a determination on the request.

(F) (1) A decommissioning plan must be submitted if required by license condition or if the procedures and activities necessary to carry out decommissioning of the site or separate building or outdoor have not been previously approved by the Agency and these procedures could increase potential health and Safety impacts to workers or to the public, such as in any of the following cases:

- (a) procedures would involve techniques not applied routinely during cleanup or maintenance operations;
 - (b) workers would be entering areas not normally occupied where surface contamination and radiation levels are significantly higher than routinely encountered during operation;
 - (c) procedures could result in significantly greater airborne concentrations of radioactive materials than are present during operation; or,
 - (d) procedures could result in significantly greater releases of radioactive material to the environment than those associated with operation.
- (2) The Agency may approve an alternate schedule for submittal of a decommissioning plan required pursuant to 105 CMR 120.132(D) if the Agency determines that the alternative schedule is necessary to the effective conduct of decommissioning operations and presents no undue risk from radiation to the public health and safety and is otherwise in the public interest.
- (3) Procedures such as those listed in 105 CMR 120.132(F)(1) with potential health and safety impacts may not be carried out prior to approval of the decommissioning plan.

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- (4) The proposed decommissioning plan for the site or separate building or outdoor area must include:
 - (a) a description of the conditions of the site or separate building or outdoor area sufficient to evaluate the acceptability of the plan;
 - (b) a description of planned decommissioning activities;
 - (c) a description of methods used to ensure protection of workers and the environment against radiation hazards during decommissioning;
 - (d) a description of the planned final radiation survey; and,
 - (e) an updated detailed cost estimate for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and a plan for assuring the availability of adequate funds for completion of decommissioning.
 - (f) For decommissioning plans calling for completion of decommissioning later than 24 months after plan approval, the plan shall include a justification for the delay based on the criteria in 105 CMR 120.132(H).
 - (5) The proposed decommissioning plan will be approved by the Agency if the information therein demonstrates that the decommissioning will be completed as soon as practicable and that the health and safety of workers and the public will be adequately protected.
- (G) (1) Except as provided in 105 CMR 120.132(B), licensees shall complete decommissioning of the site or separate building or outdoor area as soon as practicable but no later than 24 months following the initiation of decommissioning.
- (2) Except as provided in 105 CMR 120.132(H), when decommissioning involves the entire site, the licensee shall request license termination as soon as practicable but no later than 24 months following the initiation of decommissioning.
- (H) The Agency may approve a request for an alternative schedule for completion of decommissioning of the site or separate building or outdoor area, and license termination if appropriate, if the Agency determines that the alternative is warranted by consideration of the following:
- (1) whether it is technically feasible to complete decommissioning within the allotted 24-month period;
 - (2) whether sufficient waste disposal capacity is available to allow completion of decommissioning within the allotted 24-month period;
 - (3) whether a significant volume reduction in wastes requiring disposal will be achieved by allowing short-lived radionuclides to decay;
 - (4) whether a significant reduction in radiation exposure to workers can be achieved by allowing short-lived radionuclides to decay; and,
 - (5) other site-specific factors which the Agency may consider appropriate on a case-by-case basis, such as the regulatory requirements of other government agencies, lawsuits, ground-water treatment activities, monitored natural ground-water restoration, actions that could result in more environmental harm than deferred cleanup, and other factors beyond the control of the licensee.
- (I) As the final step in decommissioning, the licensee shall-
- (1) Certify the disposition of all licensed material including accumulated wastes, by submitting a completed Agency Form MRCP 120.100-3 or equivalent information; and,
 - (2) Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey unless the licensee demonstrates that the premises are suitable for release in some other manner. The licensee shall, as appropriate-
 - (a) Report levels of gamma radiation in units of millisieverts (microrentgen) per hour at one meter from surfaces, and report levels of radioactivity, including alpha and beta, in units of megabecquerels (disintegrations per minute or microcuries) per 100 square centimeters -removable and fixed - for surfaces, megabecquerels (microcuries) per milliliter for water, and becquerels (picocuries) per gram for solids such as soils or concrete; and,
 - (b) Specify the survey instrument(s) used and certify that each instrument is properly calibrated and tested.
- (J) Specific licenses, including expired licenses, will be terminated written notice to the licensee when the Agency determines that:
- (1) radioactive material has been properly disposed;
 - (2) reasonable effort has been made to eliminate residual radioactive contamination, if present; and,
 - (3) (a) a radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with Agency requirements; or,
 - (b) other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with Agency requirements.